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10/594,323	09/27/2006	Masahiro Kawamura	296025US0PCT	3336
22850 7590 04/01/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER CLARK, GREGORY D				
ART UNIT		PAPER NUMBER		
1786				
NOTIFICATION DATE		DELIVERY MODE		
04/01/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
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# Office Action Summary

**Application No.**

10/594,323

**Applicant(s)**

KAWAMURA ET AL.

**Examiner**

GREGORY CLARK

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 1/21/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

The examiner acknowledges the receipt of applicants' arguments and amended claims dated 01/25/2010.

Rejections and objections made in previous office action that do not appear below have been overcome by applicant's amendments and therefore the arguments pertaining to these rejections/objections will not be addressed.

### Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

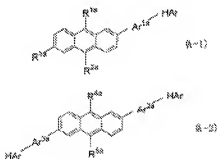
Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-21 are provisionally rejected on the ground of nonstatutory double patenting over claim 1 of copending Application 11/722, 609 in view of Yoon (WO

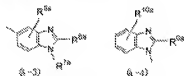
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2003/060956). This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The instant application claim 1 claims a derivative of a heterocyclic compound having a nitrogen atom represented by compounds A-1 and A-2 (shown below).



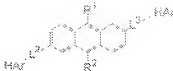
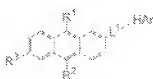
wherein  $R^{1a}$  to  $R^{8a}$  each represent a substituent,  $Ar^{1a}$  to  $Ar^{2a}$  each represent a single bond or a divalent connecting group, and  $HAr$  represents a group represented by the following general formula (A-3) or (A-4):



wherein  $R^{9a}$  to  $R^{14a}$  each represent a substituent.

Where  $HAr$  represents the heteroaryl groups A-3 and A-4 and  $Ar^{1a}$ - $Ar^{3a}$  (section 2) can be a single bond (shown below).

The copending application claims a derivative of a heterocyclic compound having a nitrogen atom represented by Formula QZ-1 and QZ-2 shown below:



Formula(s) QZ-1/ QZ-2

Where L1-L3 can be a single bond and HAr is substituted or un-substituted heteroaryl ring 3 to 60 carbons. The copending application does not specifically mention heterocycle Formula(s) A-3 and A-4.

However, in the prior art Yoon (WO 2003/060956) shows that such groups were known in the art, see section 2 below. As such, it would have been obvious to a person of ordinary skill in the art at the time of the invention have to selected from known heterocyclic groups which would have included those taught by Yoon that read on the claimed materials.

### Claim Rejections - 35 USC § 103

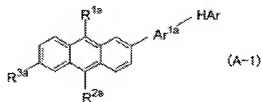
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

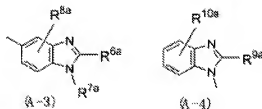
1. **Claims 1, 2, 4 and 10-13 are rejected under 35 U.S.C. 103(a) as unpatentable over Yoon (WO 2003/060956).**

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2. **Regarding Claims 1 and 2**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula (A-1):

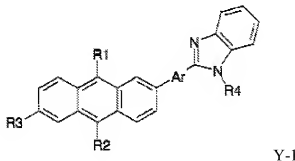


Wherein R<sup>1a</sup> to R<sup>2a</sup> each represent a substituent, Ar<sup>1a</sup> represents a single bond or a divalent connecting group, and HAr represents a group represented by the following general formula (A-3) or (A-4):



Ar<sup>8a</sup> to Ar<sup>10a</sup> each represent a substituent.

Yoon discloses a derivative of a heterocyclic compound having a nitrogen atom represented by the following general Formula (Y-1) (page 5-7):



wherein

R<sup>1</sup> and R<sup>2</sup> are independently or simultaneously a hydrogen atom, a C<sub>1-20</sub> aliphatic hydrocarbon, benzene, naphthalene, biphenyl, anthracene, or a group derived from an aromatic heterocycle or an aromatic ring, and R<sup>1</sup> and R<sup>2</sup> cannot simultaneously be hydrogen atoms;

Ar is benzene, naphthalene, biphenyl, anthracene, or a group derived from an aromatic heterocycle or an aromatic ring;

R<sup>4</sup> is a hydrogen atom, a C<sub>1-12</sub> alkyl or aliphatic hydrocarbon, benzene, naphthalene, biphenyl, anthracene, or a group derived from an aromatic heterocycle or aromatic ring.

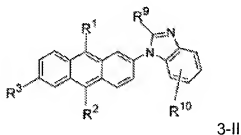
Formula Y-1 disclosed by Yoon reads on applicants' Formula A-1/A-4 in the following manner:

In Formula Y-1, R<sub>4</sub> can be an anthracene group which corresponds to the anthracene group (R<sub>1a</sub>-R<sub>3a</sub> = hydrogen) in applicants' Formula A-1 when Ar<sub>1a</sub> is a single bond; the substituted aryl group in position 1 of the heterocyclic ring of Y-1 corresponds to applicants' R<sub>9a</sub> position which can be a substituted aryl group.

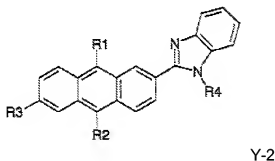
It would have been obvious to a person of ordinary skill in the art at the time of the invention to have made a series of compounds based on the guidance of Yoon

which would have included the examples mentioned above that results in compounds the read on the instant limitations.

3. **Regarding Claim 4**, the applicant claims a derivative of heterocyclic compound having a nitrogen atom represented by the following general Formula (3-II):



Yoon discloses a derivative of a heterocyclic compound having a nitrogen atom represented by the following general Formula (Y-2) (page 5):



Formula Y-2 disclosed by Yoon reads on applicants' Formula 3-II in the following manner:



In Formula Y-2, R4 can be an anthracene group which corresponds to the anthracene group in applicants' Formula 3-II. While claim 4 further limits that R1 and R2 can not both be hydrogen, it is known in the art that aryl groups including anthracene groups are common substituted with various substituents.

In Formula Y-2, the substituted aryl group in position 1 of the heterocyclic ring of 3-II corresponds to applicants' R9 position which can be a substituted aryl group.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have made a series of compounds based on the guidance of Yoon which would have included the examples mentioned above that result in compounds that read on the instant limitations.

4. **Regarding Claims 10, 12-13**, Yoon discloses an organic electroluminescent device (display) with at least one organic layer containing Formula(s) Y-1 through Y-4 (heterocyclic compounds having a nitrogen atom) the located between the anode and the cathode (per claim 10) (page 7, lines 9-11). This includes the light emitting layer (per claim 12) and the electron injection layer (per claim 13) (page 7, line 14).

5. **Regarding Claim 11**, Yoon discloses an organic electroluminescent device (display) with at least one organic layer containing Formula(s) Y-1 through Y-4 the located between the anode and the cathode (page 7, lines 9-13). This includes the light emitting layer (domain) (page 7, line 14).

6. **Claims 14-15 are rejected under 35 U.S.C. 103(a) as unpatentable over Yoon (WO 2003/060956) in view of Choog (6,064,151).**

7. **Regarding Claims 14-15**, Yoon discloses that the electron transporting layer can be doped with conductive metals having low work-functions to enhance the electron injection from the cathode (page 12, lines 23-25) (per claim 14).

Choog discloses the dopants are often added to facilitate electron injection which includes alkaline metal compounds (column 1, lines 65-66).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have selected from known dopants which would have included the alkaline metal dopants of Choog which read on applicants' limitations, absent unexpected results.

### **Response to Amendment**

The examiner acknowledges the receipt of applicants' translation of foreign priority document dated 01/25/2010. The foreign priority is hereby perfected and all rejections based on Yamamoto are withdrawn.

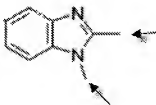
Applicant did not address the double patenting rejections in the prior office action in the remarks. The examiner maintains the double patenting rejections and expands the rejections to cover the newly added claims. In addition, the examiner offers Yoon to show that heterocyclic rings that read on applicants' heterocyclic rings were known at

the time of the invention and it would have been obvious to have selected from known heterocyclic groups to attach to the same anthracenyl core as claimed by applicant.

The examiner has crafted some new rejections based on Yoon for claims 1-2, 4 and 10-15.

The basis of the Yoon rejection no longer argues structural isomers with similar properties, but is now based on specific examples of substitutions at the 1 and 2 positions of the heterocyclic ring. As discussed in section 2, Yoon reads on applicant claims in the cases where the spacer group between the heterocyclic group and the anthracene group is a direct bond (Ar1a and Ar2a); also when applicants' 2 position (N-substituted) is a substituted aryl group.

Specifically, Yoon reads on compounds with two anthracenyl groups bonded to a single heterocyclic group at the 1 and 2 positions as shown below:



Since the basis of the Yoon rejection is no longer structural isomers, applicants' arguments concerning performance differences in structural isomers was not addressed in this office.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY CLARK whose telephone number is

(571)270-7087. The examiner can normally be reached on M-Th 7:00 AM to 5 PM  
Alternating Fri 7:30 AM to 4 PM and Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 1794

GREGORY CLARK/GDC/  
Examiner  
Art Unit 1794

